

HRAWLQ Results & Analysis For NASA

Report Generated March 26, 2008

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Project Goals

Link aggregate health risk assessment data (HRA) with aggregate presenteeism data* in order to:

- Support the business case for health promotion; and
- Identify risk factors showing the most association with productivity.

****Measured through the Work Limitations Questionnaire (WLQ).***

Analytic Parameters

Date Range for HRA/WLQ Results:

- The data from the NASA's 2007/08 HRA campaign (January 25, 2007 through February 8, 2008) were used for this analysis.

Population Assessed in Analysis:

- The primary focus of this analysis was on your active **employee** population who completed the Health Risk Assessment.
- This population was defined as individuals in the Civil Servant and Contract workforce groups.

Analytic Parameters (cont'd)

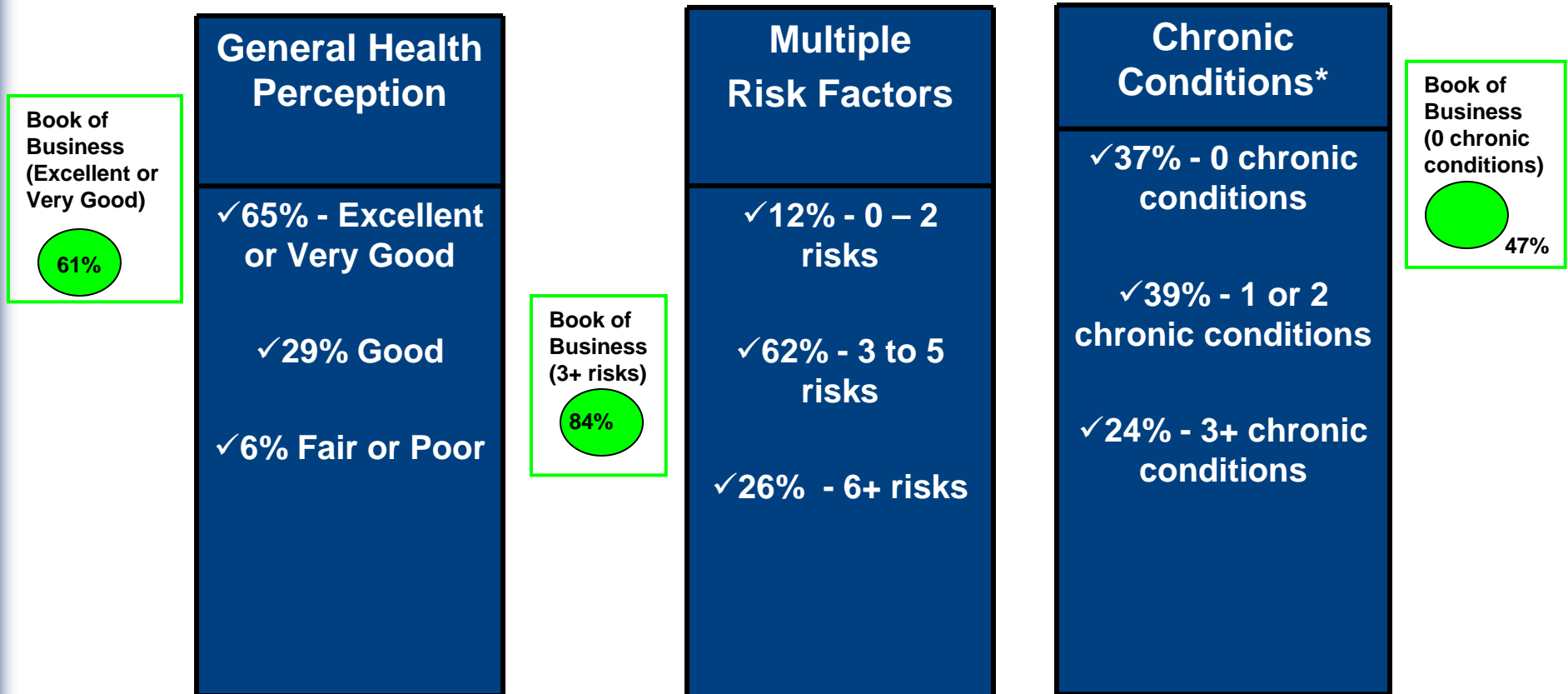
Scoring Methodology:

- An estimate of work loss due to health-related issues is represented by the % *Productivity Loss* measure throughout this analysis.
- *Productivity costs* were calculated using the HRA respondents' actual annual salary. For this report the average annual salary used was \$98,480.
- Productivity loss is further assessed through examining HRA respondents' answers to specific WLQ questions. This loss is shown along four dimensions: Time, Physical Demands, Mental-Interpersonal Demands, and Output Demands.

Overview of HRA Respondents' Results

Health Status Indicators

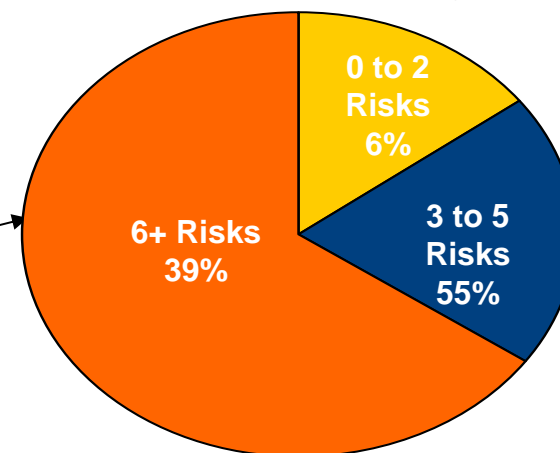
•Although the general health perception of the NASA population was slightly more positive than our Book of Business, NASA had a higher proportion of those who had multiple risk factors and a lower proportion that had no chronic conditions.



Productivity Loss and Cost Impact for HRA Participants

Total Employee Population	1,653
% Productivity Loss	1.8%
Average Productivity \$/EE	\$1,793
Total Productivity Costs	\$3.0M

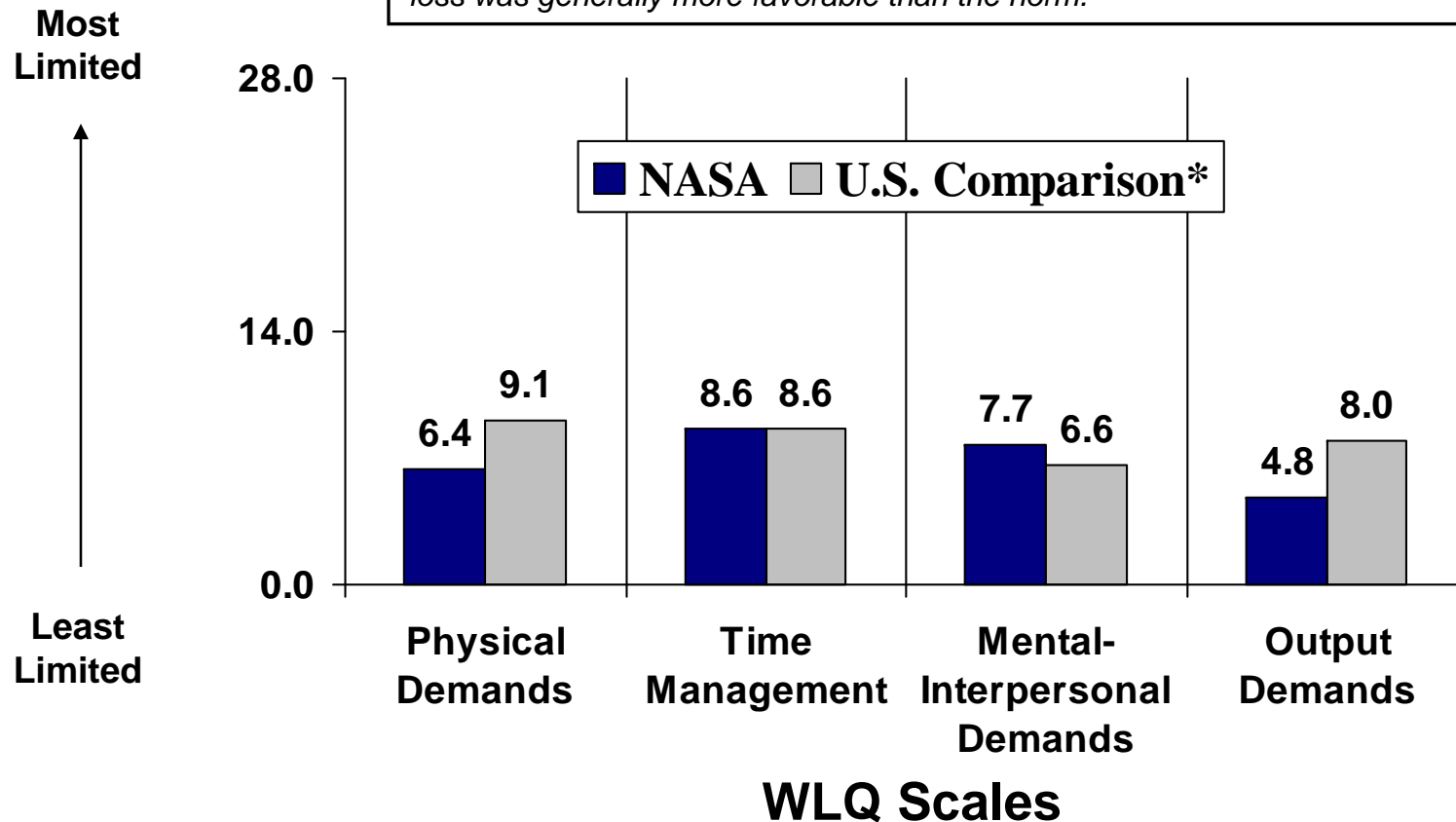
Approximate %s of Total Productivity Costs
Based on Risk Groupings



Finding: The total costs associated with productivity loss for employees who took the HRA, was approximately \$3 million. Ninety-four percent of these costs were associated with individuals who had three or more risks.

Job Performance Deficits Underlying Productivity Loss

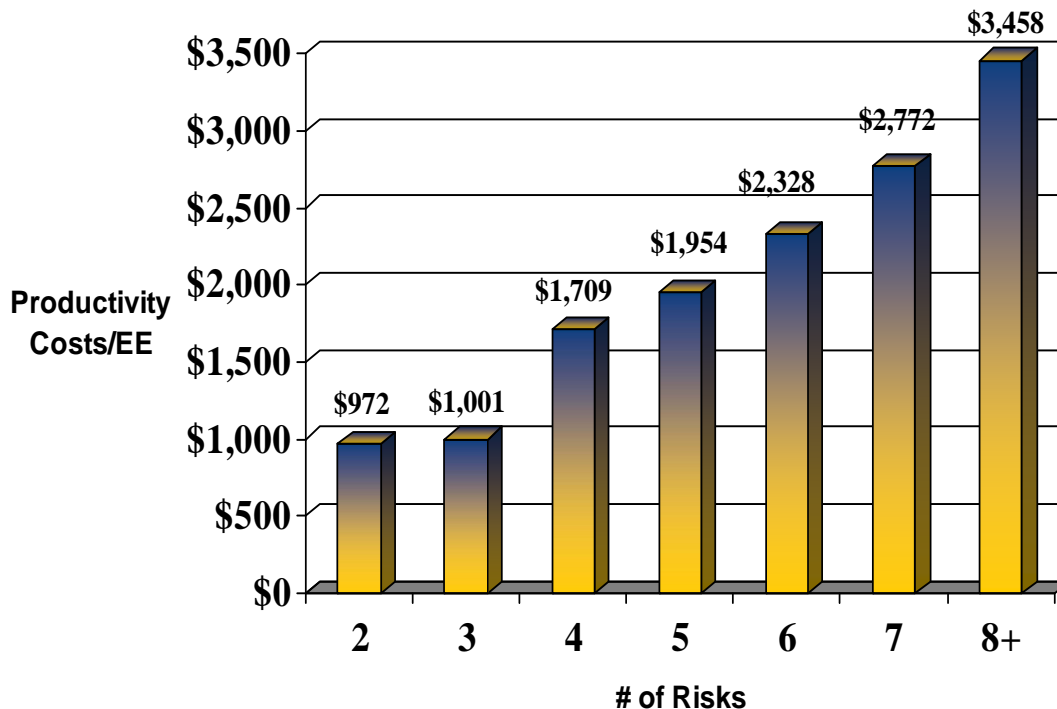
• Total productivity loss for NASA of 1.8% was slightly below the national norm (2.3%). When examining specific job performance areas, the NASA's productivity loss was generally more favorable than the norm.



A Closer Look at HRA Respondents' Results

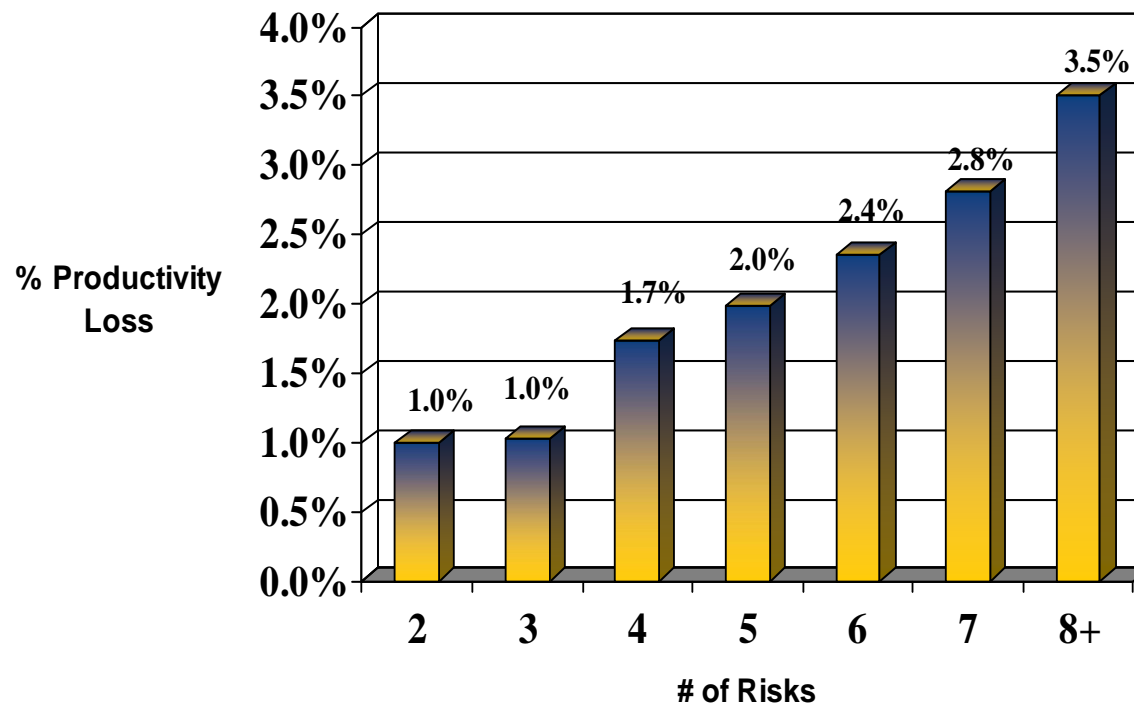
Multiple Risk Factors – Cost Association*

•The higher the number of risk factors, the greater the health burden and health impairment costs associated with your population.



# of risks	N
2	138
3	284
4	388
5	351
6	238
7	124
8+	69

Multiple Risk Factors – Productivity Loss Association*



•The higher the number of risk factors, the greater the health burden and loss of productivity associated with your population.

*Zero risks were not presented here given the small cell size and lack of significant results.

Analyzing Medical Risks

- The productivity costs associated with medical risks range from \$474K to \$2.0M across the NASA's population.*

Medical Risks	Prevalence (%)	Average Productivity Loss (%)	Aggregate Annual Loss (\$)
Blood Pressure	52%	1.9%	\$1.6M
Blood Sugar	14%	2.3%	\$474K
Cholesterol	23%	1.8%	\$564K
Triglycerides	17%	2.4%	\$541K
Weight	64%	2.0%	\$2.0M

Analyzing Lifestyle Risks

•The productivity costs associated with lifestyle risks range from \$322K to \$2.6M across NASA's population.

Lifestyle Risks	Prevalence (%)	Average Productivity Loss (%)	Aggregate Annual Loss (\$)
Emotional Health	62%	2.4%	\$2.4M
Exercise	48%	2.2%	\$1.7M
Nutrition	83%	1.9%	\$2.6M
Safety	75%	1.9%	\$2.3M
Tobacco	8%	2.5%	\$322K

A Further Look into Emotional Health

- Individuals in the **At Risk** group have more lifestyle risks and their perception of health is not as favorable compared to those at strength.

Characteristics of Individuals in **At Risk** (n=1,018; loss = \$2,390 per employee per year)

Population Characteristic	Result
Average Age	45.6
Proportion at Risk Female	52%
Proportion at Risk Male	48%
Average number of other Lifestyle risk factors	3.3
Average number of Medical risk factors	1.6
Perception of Health = Excellent	18%

Characteristics of Individuals **Not At Risk** (n=635; loss = \$818 per employee per year)

Population Characteristic	Result
Average Age	46.8
Proportion at Risk Female	41%
Proportion at Risk Male	59%
Average number of other Lifestyle risk factors	2.1
Average number of Medical risk factors	1.6
Perception of Health = Excellent	30%

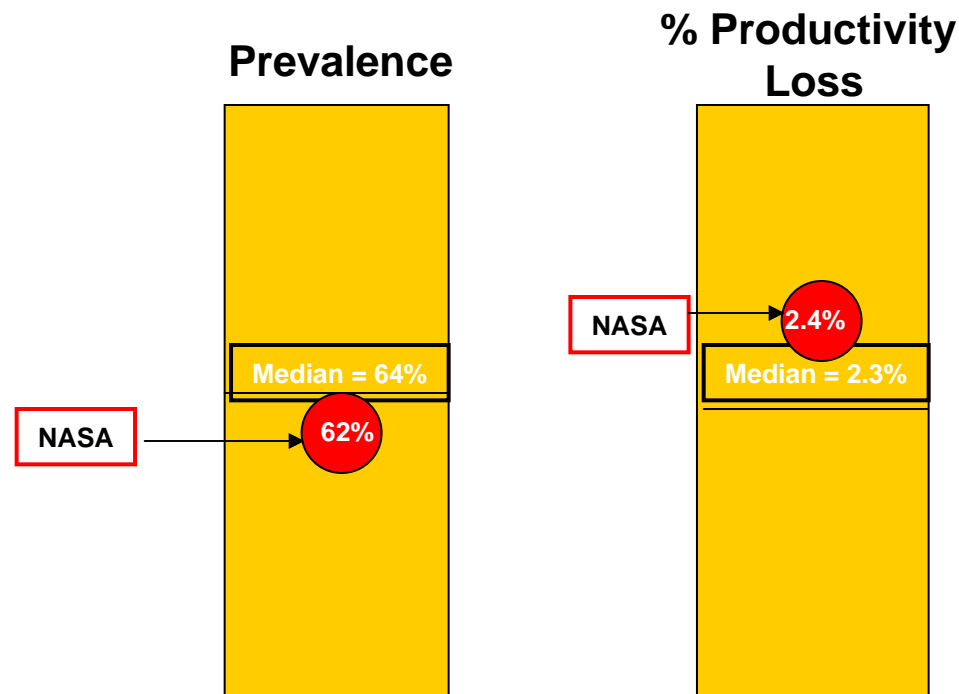
A Further Look into Emotional Health

•Health-related impairments to on the job productivity associated with Emotional Health issues are significant and comprise a broad group to include those with depression symptoms and anxiety, as well as those identified at risk within the Emotional Health lifestyle risk area (as is evident by the previous slide).

Emotional Health-related Characteristics	Count	% of HRA Respondents	% With Chronic Condition who also have Comorbidities	% Productivity Lost	Average Productivity Cost/Employee
Has a doctor ever told you that you have any of the following health problems? – <u>Depression Symptoms</u>	166	10%	16%	3.8%	\$3,751
Has a doctor ever told you that you have any of the following health problems? – <u>Anxiety</u>	127	8%	12%	3.8%	\$3,737

Emotional Health

•When examining NASA's experience* compared to our current book of business results, the prevalence of those at risk for Emotional Health, along with their associated productivity losses are about at the median levels.



•The NASA's experience is based on those employees who completed the HRA and were at risk for Emotional Health in 2007.

A Further Look into Nutrition

- *Individuals in the **At Risk** group have more lifestyle risks and their perception of health is not as favorable compared to those at strength.*

Characteristics of Individuals in **At Risk (n=1,364; loss = \$1,878 per employee per year)**

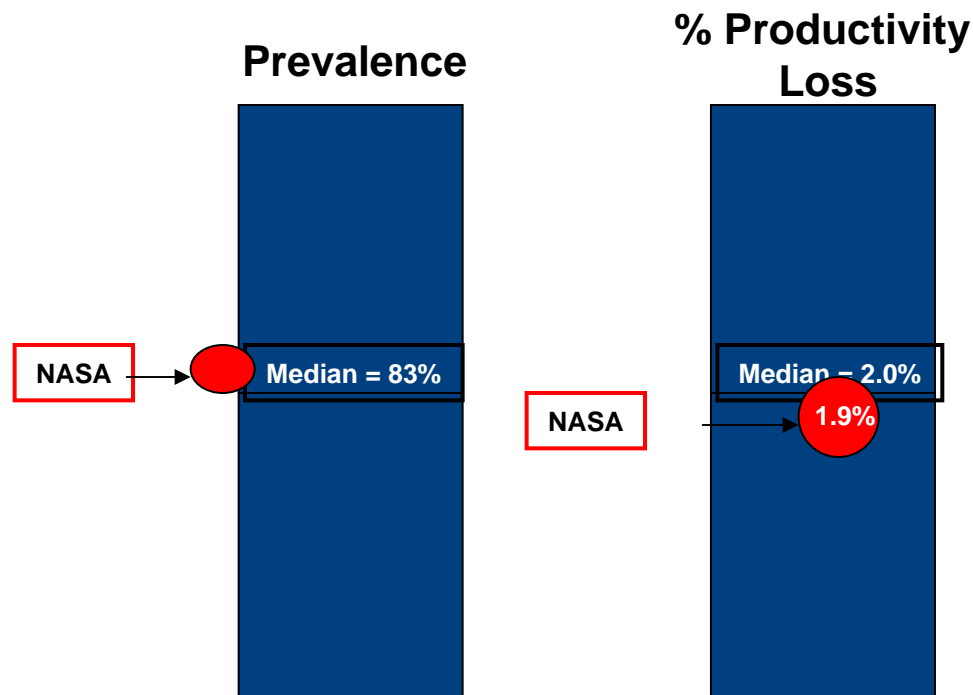
Population Characteristic	Result
Average Age	45.5
Proportion at Risk Female	47%
Proportion at Risk Male	53%
Average number of other Lifestyle risk factors	3.1
Average number of Medical risk factors	1.7
Perception of Health = Excellent	21%

Characteristics of Individuals **Not At Risk (n=277; loss = \$1,384 per employee per year)**

Population Characteristic	Result
Average Age	49.1
Proportion at Risk Female	53%
Proportion at Risk Male	47%
Average number of other Lifestyle risk factors	1.7
Average number of Medical risk factors	1.2
Perception of Health = Excellent	35%

Nutrition

•When examining NASA's experience compared to our current book of business results, the prevalence of those at risk for Nutrition is at the median level.



•NASA's experience is based on those employees who completed the HRA and were at risk for Nutrition in 2007.

Further Look into Tobacco

• Individuals in the **At Risk** group have more lifestyle risks and their perception of health is not as favorable compared to those at strength.

Characteristics of Individuals in **At Risk** (n=130; loss = \$2,478 per employee per year)

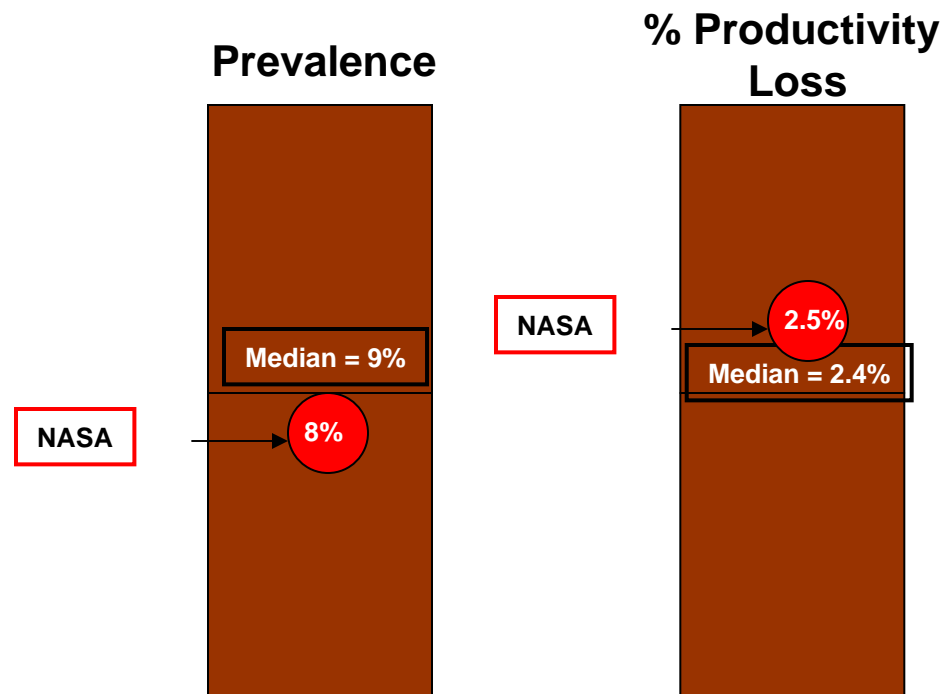
Population Characteristic	Result
Average Age	46.3
Proportion at Risk Female	37%
Proportion at Risk Male	63%
Average number of other Lifestyle risk factors	4.2
Average number of Medical risk factors	1.8
Perception of Health = Excellent	1%

Characteristics of Individuals **Not At Risk** (n=1,523; loss = \$1,733 per employee per year)

Population Characteristic	Result
Average Age	46.1
Proportion at Risk Female	49%
Proportion at Risk Male	51%
Average number of other Lifestyle risk factors	2.7
Average number of Medical risk factors	1.6
Perception of Health = Excellent	24%

Tobacco

•When examining NASA's experience compared to our current book of business results, the prevalence of those at risk for Tobacco is approximately at median levels with the associated productivity loss slightly above median levels.



•The NASA's experience is based on those employees who completed the HRA and were at risk for Tobacco in 2007.

Further Look into Weight

- *Individuals in the **At Risk** group have more lifestyle risks and their perception of health is not as favorable compared to those at strength.*

Characteristics of Individuals in **At Risk (n=1,039; loss = \$1,922 per employee per year)**

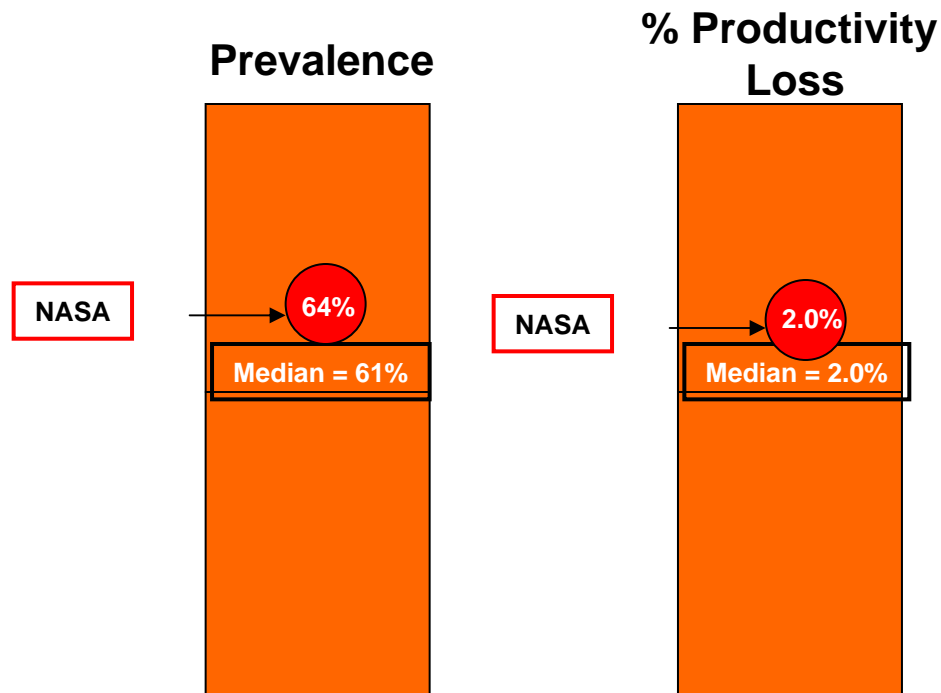
Population Characteristic	Result
Average Age	46.8
Proportion at Risk Female	43%
Proportion at Risk Male	57%
Average number of other Lifestyle risk factors	2.9
Average number of Medical risk factors	2.1
Perception of Health = Excellent	16%

Characteristics of Individuals **Not At Risk (n=572; loss = \$1,578 per employee per year)**

Population Characteristic	Result
Average Age	44.8
Proportion at Risk Female	58%
Proportion at Risk Male	42%
Average number of other Lifestyle risk factors	2.7
Average number of Medical risk factors	.6
Perception of Health = Excellent	37%

Weight

•When examining NASA's experience compared to our current book of business results, the prevalence of those at risk for Weight is above the median level, while the associated productivity loss is right at median levels.



•NASA's experience is based on those employees who completed the HRA and were at risk for weight in 2007.

Analyzing Comorbidities

- *Those conditions that are highly prevalent within NASA's population also have a high presenteeism impact.*
- *Forty-eight percent of HRA respondents with Allergies also had another comorbidity. Individuals with allergies experienced a 2.1% annual loss in productivity with associated average costs of \$2,020 per employee per year.*

Top Chronic Condition (Ranked by % with Comorbidities)	Count	% of HRA Respondents	% With Chronic Condition who also have Comorbidities	% Productivity Lost	Average Productivity Cost/Employee
Allergies	499	30%	48%	2.1%	\$2,020
High Cholesterol	327	20%	31%	2.0%	\$2,014
Hypertension	238	14%	23%	2.6%	\$2,544
Depression	166	10%	16%	3.8%	\$3,751

Analyzing Comorbidities for Allergies

- *Forty-eight percent of all individuals who indicated that they have allergies, also have other comorbidities.*
- *Although not related to Allergies, individuals who were diagnosed with Allergies also had these other conditions - High Cholesterol, Hypertension, and Arthritis which is likely to contribute to their overall health-related productivity loss.*

Top Comorbid Conditions	Count	% of those diagnosed with Allergies
High Cholesterol	112	22%
Hypertension	91	18%
Arthritis	82	16%

Key Findings and Recommendations

Key Findings

- NASA's productivity loss due to health impairment was comparable with national averages (2.3% compared to 1.8%) These losses are associated with an estimated \$3.0M per year.
- The worse the health impairment, the more the health burden and associated productivity loss for NASA.
- Emotional health risks significantly impact productivity loss across NASA. Those **at risk** for Emotional Health are approximately three times more costly than those not at risk.
- Also evident, is the productivity loss associated with those **at risk** for Nutrition. 83% percent of the population is at risk and the associated productivity costs are 36% higher than those not at risk.
- Approximately 30% of those with chronic conditions were diagnosed with allergies. Individuals with allergies has an associated productivity loss of \$2,020 per employee. Bottom-line: It's not allergies alone that impact productivity

Recommendations

- **Continued focus on increasing HRA participation (creative incentives, detailed communication strategy, “champions” at each Center, leadership support, etc). Increased HRA participation in 2008 will help to define the impact of health-related risks and chronic conditions on your workforce.**
- **Opportunity exists to enhance NASA’s health-related productivity experience through:**
 - Managing lifestyle-related risks such as nutrition, emotional health, and safety. A first step in this management is to understand the drivers of these risks and encourage participation in interventions that can help employees address their needs. Consider a company-wide online campaign such as My Stress Solution.
 - Examining the impact that poor nutritional behaviors have on your workforce’s productivity reveals that those *at risk* in Nutrition represented 83% of the population. The productivity cost associated with these individuals was 36% higher than those at Strength. Given the prevalence of this risk factor within your population, this area has significant business relevance for your organization.
 - The prevalence of certain Medical (Cholesterol and Triglycerides) risks appear to be a bit lower than expected within your population. Approximately 25% of HRA completers did not know their risks. Consider optimizing the health of your population through supporting individual’s understanding of their own biometrics.

Recommendations (cont'd)

- Opportunity exists to enhance NASA's health-related productivity experience through:
 - Sharing results with employees. Use this information to promote population health management initiatives (such as lifestyle coaching) that can assist employees with managing their health risks and conditions.
 - Examining the impact of addictive behavior on your population's health and productivity costs. While tobacco use was not reported as the highest cost driver, tobacco use does impact productivity. Providing a supportive environment that addresses this addiction will directly impact your workforce productivity.
 - Focusing on higher HRA campaign participation in 2008 to refine the impact of health-related risks and chronic conditions on the productivity of your workforce.

Appendix

- Data Dictionary**
- WLQ Question Set**
- Project Team**

Data Dictionary

Data Dictionary

Productivity Cost/Employee:	This represents the health impaired productivity loss multiplied by the average annual salary. (Also known as Average Productivity Costs/Employee or Average Productivity Costs/EE.)
Cost Indicator:	This is the difference in the average productivity cost per employee per year between those at risk versus those at strength.
% Productivity Loss	This measure represents the weighted sum of the scores in the Mental-Interpersonal, Output, Physical, and Time demand dimensions. It can be interpreted as estimated average percent productivity loss per respondent per factor assessed (lifestyle, medical, number of risks, etc.).

Data Dictionary (cont'd)

WLQ Dimension: Mental-Interpersonal Demands	Examines factors associated with the difficulty of performing cognitive job tasks and/or processing information.
WLQ Dimension: Output Demands	Examines a person's ability to meet demands for quantitative, quality, and timeliness of completed work.
WLQ Dimension: Physical Demands	Examines factors associated with a person's ability to perform job tasks that involved bodily strength, movement, endurance, coordination, and flexibility.
WLQ Dimension: Time Management Demands	Examines factors addressing the difficulty of performing a job's time and scheduling demands.

Work Limitations (WLQ) Question Set

Question Set

- (1) In the past two weeks, how much of the time did your physical health or emotional health problems make it difficult for you to get going easily at the beginning of the work day?**
- (2) In the past two weeks, how much of the time did your physical health or emotional health problems make it difficult for you to start on your job as soon as you arrived?**
- (3) In the past two weeks, how much of the time were you able to sit, stand, or stay in one position for longer than 15 minutes while working, without difficulty caused by physical health or emotional problems?**
- (4) In the past two weeks, how many times were you able to repeat the same motions over and over again while working, without difficulty caused by physical health or emotional problems?**

Question Set (cont'd)

- (5) In the past two weeks, how much of your physical health or emotional health problems make it difficult for you to concentrate on your work?**
- (6) In the past two weeks, how much of your physical health or emotional health problems make it difficult for you to speak with people in - person, in meetings or on the phone?**
- (7) In the past two weeks, how much of your physical health or emotional health problems make it difficult for you to handle your workload?**
- (8) In the past two weeks, how much of your physical health or emotional health problems make it difficult for you to finish your work on time?**

Question Set (cont'd)

Each question is assessed using the following responses:

- **Difficult all of the time (100 percent)**
- **Difficult most of the time**
- **Difficult some of the time (about 50 percent)**
- **Difficult a slight bit of the time**
- **Difficult none of the time (0 percent)**
- **Does not apply to my job**

Project Teams

The following analyses is provided through the collaborative efforts of:

- The project team led by Dr. Debra Lerner, MS, Ph.D., from Tufts/New England Medical Center.**
- The project team led by Arlene Guindon, M.P.H., Director, Healthcare Analytics and Outcomes Reporting.**



NASA

*EmbodyHealth Progress
Update*

June 12, 2008

Management Briefing

EmbodyHealth Engagement

- 4,602 individuals have registered on *NASAHealthierYou.com* since launch in 2007.
- *NASAHealthierYou.com* experienced 20,179 visits in 2007 and 17,672 visits YTD 2008.
















Health Risk Assessment

- In 2007, 1,705 participants completed the HRA.
- YTD 2008, 1,611 participants have completed the HRA.
- In 2007, 47% of participants were classified as high risk (5+ risk factors) compared to 49% YTD 2008.

HRA Participation

<i>Metric</i>	<i>2008 HRA (YTD)</i>	<i>2007 HRA</i>
Participation	1,611	1,705
Civil Servants	44%	78%
Contractors	54%	19%
Spouse/Other	2%	3%
Male	49%	52%
Female	51%	48%
Age 40-49	32%	36%
Age 50+	43%	37%

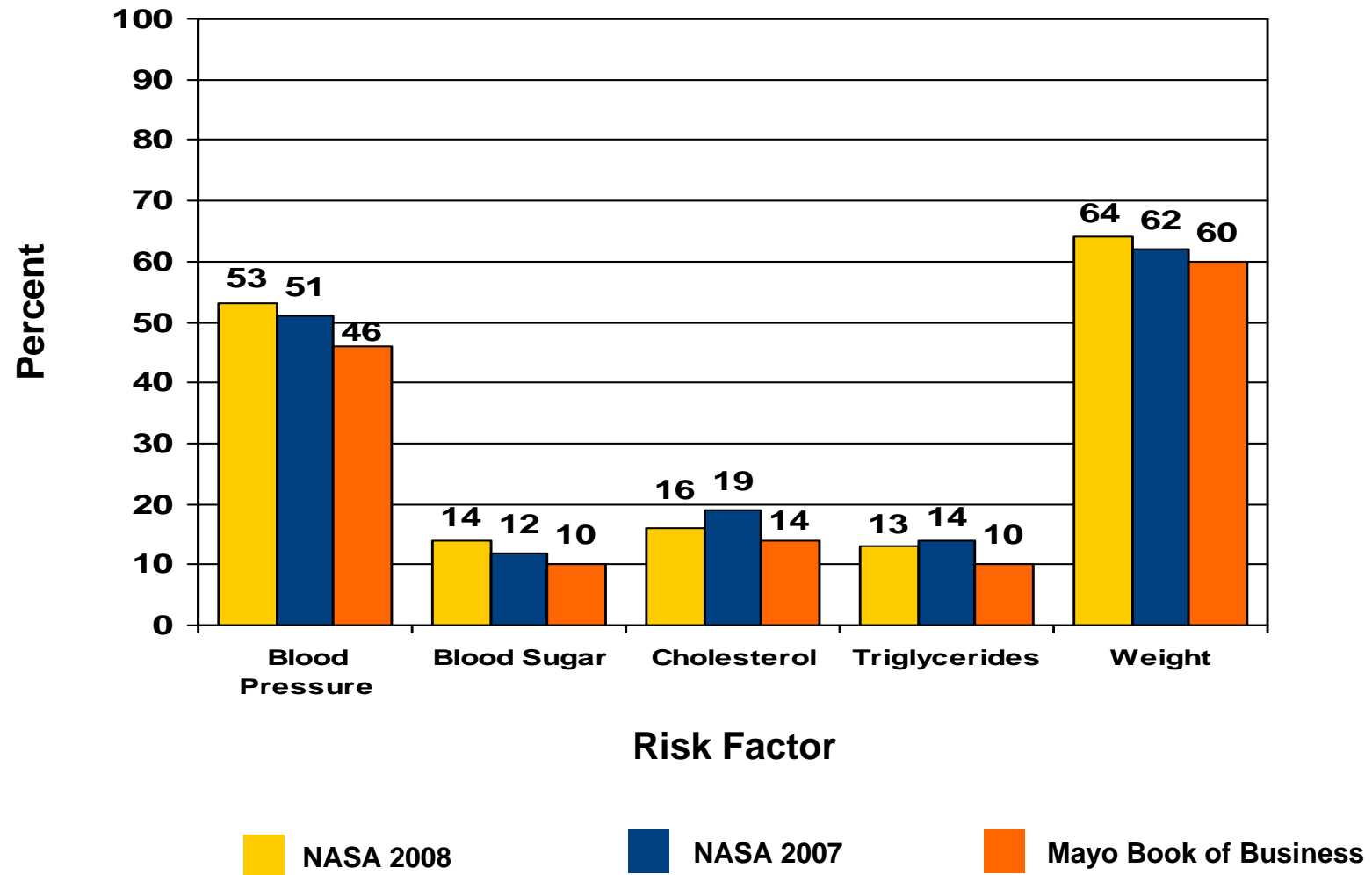
HRA Participation by Center

Location	2008 (YTD)	2007
ARC 	106	90
DFRC 	44	22
GRC 	71	130
GSFC 	128	200
HQ 	71	98
JPL 	3	2
JSC 	345	147
KSC 	301	284
LRC 	168	147
MAF 	0	3
MSFC 	217	215
NSSC 	13	15
SSC 	106	315
WFF 	23	29
WSTF 	15	8

2008 Communications Review



Medical Risk Factors



Lifestyle Risk Factors

